	Application No.	Applicant(s)
Notice of Allowability	10/799,090	BELCEA, JOHN M.
	Examiner K.P Kamran Afshar, 571-272-7796	Art Unit 2681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to _1/19/2006_.

2. ☒ The allowed claim(s) is/are _1-21_.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

    Paper No./Mail Date _____ .

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _12/05/2005_

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

DETAILED ACTION

EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Joseph J. Buczynski, Reg. No.: 35084 on 1/19/2006.

The application has been amended as follows:

In The Claims(s):

1.   (Currently Amended)   A method for determining a location of a mobile communication device in a communication network, the method comprising:

estimating a location of the mobile communication device based on measured data representing respective distances between the mobile communication device and a plurality of reference points;

assigning a respective weight factor to each data of the measured data;

generating a forget factor based on the respective weight factors; and

modifying the estimated location, using a predictive filter including a the forget factor which treats older measured data less significantly than newer measured data in estimating the location, to generate a modified estimated location representative of the location of the mobile communication device.

(Original)   The method as claimed in claim 1, wherein:

the modifying step predicts movement of the mobile communication device on three axes of coordinates and uses the predictive filter to adjust the predicted movement to ascertain the modified estimated location.

3.   (Original)   The method as claimed in claim 2, wherein:

the modifying step predicts the movement using equations including variables representing the starting position of the mobile communication device and variables representing the moving speed of the mobile communication device, as modified by the predictive filter.

4.   (Currently Amended)   ~~The method as claimed in claim 3,~~ A method for determining a location of a mobile communication device in a communication network, the method comprising:

estimating a location of the mobile communication device based on measured data representing respective distances between the mobile communication device and a plurality of reference points;

modifying the estimated location, using a predictive filter including a forget factor which treats older measured data less significantly than newer measured data in estimating the location, to generate a modified estimated location representative of the location of the mobile communication device;

wherein:

the modifying step predicts movement of the mobile communication device on three axes of coordinates and uses the predictive filter to adjust the predicted movement to ascertain the modified estimated location;

the modifying step predicts the movement using equations including variables representing the starting position of the mobile communication device and variables representing the moving speed of the mobile communication device, as modified by the predictive filter; and

the equations include three systems of equations, each system pertaining to a respective axis of movement and employing the forget factor to adjust the estimated starting position coordinate for that respective axis and speed of movement along that respective axis.

5.   (Previously Presented)   The method as claimed in claim 1, wherein:

the network includes a wireless multihopping communication network, and the mobile communication device is a node in the wireless multihopping communication network.

6.   (Original)   The method as claimed in claim 1, wherein:

the mobile communication device performs the estimating and modifying steps.

7.   (Original)   The method as claimed in claim 1, wherein:

the forget factor has a value between 0 and 1.

8.   (Currently Amended)   A computer readable medium of instructions for enabling a processor to determine a location of a mobile communication device in a communication network, the computer readable medium of instructions comprising:

a first set of instructions, adapted to control the processor to estimate a location of the mobile communication device based on measured data representing respective distances between the mobile communication device and a plurality of reference points; and

a second set of instructions, adapted to control the processor to modify the estimated location, using a predictive filter including a forget factor which treats older measured data less significantly than newer measured data in estimating the location, to generate a modified estimated location representative of the location of the mobile communication device;

wherein the second set of instructions is further adapted to control the processor to assign a respective weight factor to each data of the measured data, and to generate the forget factor based on the assigned weight factors.

9.   (Original)   The computer readable medium of instructions as claimed in claim 8, wherein:

the second set of instructions is adapted to control the processor to predict movement of the mobile communication device on three axes of coordinates and uses the predictive filter to adjust the predicted movement to ascertain the modified estimated location.

10.   (Original)   The computer readable medium of instructions as claimed in claim 9, wherein:

the second set of instructions is adapted to control the processor to predict the movement

using equations including variables representing the starting position of the mobile

communication device and variables representing the moving speed of the mobile communication

device, as modified by the predictive filter.

11.   (Currently Amended)   ~~The computer readable medium of instructions as~~

~~claimed in claim 10,~~ A computer readable medium of instructions for enabling a processor to

determine a location of a mobile communication device in a communication network, the

computer readable medium of instructions comprising:

a first set of instructions, adapted to control the processor to estimate a location of the

mobile communication device based on measured data representing respective distances

between the mobile communication device and a plurality of reference points; and

a second set of instructions, adapted to control the processor to modify the estimated

location, using a predictive filter including a forget factor which treats older measured data less

significantly than newer measured data in estimating the location, to generate a modified

estimated location representative of the location of the mobile communication device;

wherein:

the second set of instructions is adapted to control the processor to predict movement of

the mobile communication device on three axes of coordinates and uses the predictive filter to

adjust the predicted movement to ascertain the modified estimated location;

the second set of instructions is adapted to control the processor to predict the movement

using equations including variables representing the starting position of the mobile

communication device and variables representing the moving speed of the mobile communication

device, as modified by the predictive filter; and

the equations include three systems of equations, each system pertaining to a respective

axis of movement and employing the forget factor to adjust the estimated starting position

coordinate for that respective axis and speed of movement along that respective axis.

12.   (Previously Presented) The computer readable medium of instructions as claimed in claim 8, wherein:

the network includes a wireless multihopping communication network, and the mobile communication device is a node in the wireless multihopping communication network.

13.   (Original)   The computer readable medium of instructions as claimed in claim 8, wherein:

the processor is employed at the mobile communication device to perform the estimating and modifying operations.

14.   (Original)   The computer readable medium of instructions as claimed in claim 8, wherein:

the forget factor has a value between 0 and 1.

15.   (Currently Amended)   A system for determining a location of a mobile communication device in a communication network, the system comprising:

a processor, adapted to estimate a location of the mobile communication device based on measured data representing respective distances between the mobile communication device and a plurality of reference points, and being further adapted to assign a respective weight factor to each data of the measured data, generate the forget factor based on the assigned weight factors, and modify the estimated location, using a predictive filter including a the forget factor which treats older measured data less significantly than newer measured data in estimating the location, to generate a modified estimated location representative of the location of the mobile communication device.

16.   (Original)   The system as claimed in claim 15, wherein:

the modifying operation predicts movement of the mobile communication device on three axes of coordinates and uses the predictive filter to adjust the predicted movement to ascertain the modified estimated location.

17.   (Original)   The system as claimed in claim 16, wherein:

the modifying operation predicts the movement using equations including variables representing the starting position of the mobile communication device and variables representing the moving speed of the mobile communication device, as modified by the predictive filter.

18. (Currently Amended) ~~The system as claimed in claim 17,~~ A system for determining a location of a mobile communication device in a communication network, the system comprising:

a processor, adapted to estimate a location of the mobile communication device based on measured data representing respective distances between the mobile communication device and a plurality of reference points, and being further adapted to modify the estimated location, using a predictive filter including a forget factor which treats older measured data less significantly than newer measured data in estimating the location, to generate a modified estimated location representative of the location of the mobile communication device;

wherein:

the modifying operation predicts movement of the mobile communication device on three axes of coordinates and uses the predictive filter to adjust the predicted movement to ascertain the modified estimated location;

the modifying operation predicts the movement using equations including variables representing the starting position of the mobile communication device and variables representing the moving speed of the mobile communication device, as modified by the predictive filter; and

the equations include three systems of equations, each system pertaining to a respective axis of movement and employing the forget factor to adjust the estimated starting position coordinate for that respective axis and speed of movement along that respective axis.

19. (Previously Presented) The system as claimed in claim 15, wherein:

the network includes a wireless multihopping communication network, and the mobile communication device is a node in the wireless multihopping communication network.

20. (Original) The system as claimed in claim 15, wherein:

the mobile communication device includes the processor that performs the estimating

and modifying operations.

21.   (Original)   The system as claimed in claim 15, wherein:

the forget factor has a value between 0 and 1.

22-24.(Canceled)

Allowable Subject Matter

2.   In view of the Examiner's Amendment in item 1, Claims 1-21 are allowed.

The following is an examiner's statement of reasons for allowance: 1-21.

With respect to claim 1, the prior art of record fails to disclose singly or in combination or render

obvious that assigning a respective weight factor to each data of the measured data; generating a forget

factor based on the respective weight factors; and modifying the estimated location, using a predictive

filter including the forget factor which treats older measured data less significantly.than newer measured

data in estimating the location, to generate a modified estimated location representative of the location of

the mobile communication device.

With respect to claim 4, the prior art of record fails to disclose singly or in combination or render

obvious that modifying the estimated location, using a predictive filter including a forget factor which treats

older measured data less significantly than newer measured data in estimating the location, to generate a

modified estimated location representative of the location of the mobile communication device; wherein:

the modifying step predicts movement of the mobile communication device on three axes of coordinates

and uses the predictive filter to adjust the predicted movement to ascertain the modified estimated

location; the modifying step predicts the movement using equations including variables representing the

starting position of the mobile communication device and variables representing the moving speed of the

mobile communication device, as modified by the predictive filter; and the equations include three

systems of equations, each system pertaining to a respective axis of movement and employing the forget

factor to adjust the estimated starting position coordinate for that respective axis and speed of movement along that respective axis.

With respect to claim 8, the prior art of record fails to disclose singly or in combination or render obvious that a second set of instructions, adapted to control the processor to modify the estimated location, using a predictive filter including a forget factor which treats older measured data less significantly than newer measured data in estimating the location, to generate a modified estimated location representative of the location of the mobile communication device; wherein the second set of instructions is further adapted to control the processor to assign a respective weight factor to each data of the measured data, and to generate the forget factor based on the assigned weight factors.

With respect to claim 11, the prior art of record fails to disclose singly or in combination or render obvious that a second set of instructions, adapted to control the processor to modify the estimated location, using a predictive filter including a forget factor which treats older measured data less significantly than newer measured data in estimating the location, to generate a modified estimated location representative of the location of the mobile communication device; wherein: the second set of instructions is adapted to control the processor to predict movement of the mobile communication device on three axes of coordinates and uses the predictive filter to adjust the predicted movement to ascertain the modified estimated location; the second set of instructions is adapted to control the processor to predict the movement using equations including variables representing the starting position of the mobile communication device and variables representing the moving speed of the mobile communication device, as modified by the predictive filter; and the equations include three systems of equations, each system pertaining to a respective axis of movement and employing the forget factor to adjust the estimated starting position coordinate for that respective axis and speed of movement along that respective axis.

With respect to claim 15, the prior art of record fails to disclose singly or in combination or render obvious that further adapted to assign a respective weight factor to each data of the measured data, generate the forget factor based on the assigned weight factors, and modify the estimated location, using a predictive filter including the forget factor which treats older measured data less significantly than newer

measured data in estimating the location, to generate a modified estimated location representative of the location of the mobile communication device.

With respect to claim 18, the prior art of record fails to disclose singly or in combination or render obvious that further adapted to modify the estimated location, using a predictive filter including a forget factor which treats older measured data less significantly than newer measured data in estimating the location, to generate a modified estimated location representative of the location of the mobile communication device; wherein: the modifying operation predicts movement of the mobile communication device on three axes of coordinates and uses the predictive filter to adjust the predicted movement to ascertain the modified estimated location; the modifying operation predicts the movement using equations including variables representing the starting position of the mobile communication device and variables representing the moving speed of the mobile communication device, as modified by the predictive filter; and the equations include three systems of equations, each system pertaining to a respective axis of movement and employing the forget factor to adjust the estimated starting position coordinate for that respective axis and speed of movement along that respective axis.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Cho (U.S. 6, 919, 842 B2).

b) Diggelen (U.S. Pub. No.: 2005/0228589 A1).
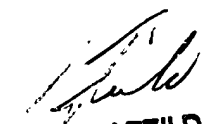
c) Camp, JR. (U.S. Pub. No.: 2005/0181810 A1).

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kamran Afshar whose telephone number is (571) 272-7796. The examiner can be reached on Monday-Friday.

    If attempts to reach the examiner by the telephone are unsuccessful, the examiner's supervisor,

Feild, Joseph can be reached @ (571) 272-4090. The fax number for the organization where this

application or proceeding is assigned is **571-273-8300** for all communications.

    Information regarding the status of an application may be obtained from the Patent Application

Information Retrieval (PAIR) system. Status information for published applications may be obtained from

either Private PAIR or Public PAIR. Status information for unpublished applications is available through

Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC)

at 866-217-9197 (toll-free).

Kamran Afshar

JOSEPH FEILD
SUPERVISORY PATENT EXAMINER